

WHAT IS CLAIMED IS:

1. A load lock that defines at least partially a first chamber and an auxiliary chamber, said load lock comprising:

a first port and a second port, said first and second ports for moving a wafer into and out of said load lock;

an elevator plate including a wafer carrier that is adapted for receiving a plurality of wafers; and

said wafer carrier being moveable between a first position where said wafer carrier is in said first chamber and a second position where said wafer carrier is in said auxiliary chamber and said elevator plate substantially seals said auxiliary chamber from said first chamber.

2. A load lock as set forth in Claim 1, wherein said load lock is formed at least in part by a first housing portion and an auxiliary housing portion that is removably coupled to said first portion.

3. A load lock as set forth in Claim 1, wherein said wafer carrier is adapted for receiving only a pair of wafers.

4. A load lock as set forth in Claim 1, wherein said wafer carrier includes at least an unload position and a load position.

5. A load lock as set forth in Claim 1, wherein said wafer carrier is located on top of said elevator plate.

6. A load lock as set forth in Claim 5, wherein said elevator plate is configured to move vertically in said load lock.

7. A load lock port as set forth in Claim 1, wherein said first and second ports open into said first chamber.

8. A load lock port as set forth in Claim 7, wherein said load lock comprises a first housing portion and an auxiliary housing portion that at least partially defines the auxiliary chamber, said first and second ports being located on said first housing portion.

9. A load lock as set forth in Claim 1, wherein said first port opens into said first chamber and said second port opens into said auxiliary chamber.

10. A load lock as set forth in Claim 9, wherein said first port communicates with a wafer handling module.

5 11. A load lock as set forth in Claim 10, wherein said load lock comprises a first housing portion and an auxiliary housing portion, said first port being located on said first portion and said second port being located on said auxiliary housing portion.

12. A load lock as set forth in Claim 9, wherein said second port communicates with a wafer handling module.

10 13. A load lock port as set forth in Claim 12, wherein said load lock comprises a first housing portion and an auxiliary housing portion, said first port being located on said first housing portion and said second port being located on said auxiliary housing portion.

14. A load lock as set forth in Claim 1, wherein said first port is configured to receive said wafer carrier and said wafer carrier being moveable between an outside position where said wafer carrier is outside said load lock and an inside position wherein said wafer carrier is inside said load lock.

15. A load lock as set forth in Claim 14, wherein said load lock further includes a second elevator plate configured such that said elevator plate substantially closes said first port when said wafer carrier is in said inside position.

20 16. A load lock as set forth in Claim 14, wherein said second port opens into said auxiliary chamber.

17. A load lock as set forth in Claim 14, wherein said second port opens into said first chamber.

18. A load lock as set forth in Claim 1, wherein said auxiliary chamber includes inner walls that are adapted to withstand an auxiliary fluid.

25 19. A load lock as set forth in Claim 18, wherein said auxiliary fluid comprises HF vapor.

20. A load lock as set forth in Claim 1, wherein said load lock further includes heating elements.

30 21. A load lock as set forth in Claim 20, wherein said heating elements are located within said auxiliary chamber.

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22. A load lock as set forth in Claim 20, wherein said heating elements are located upon the elevator plate.

23. A method of processing semiconductor wafers comprising the steps of:  
placing a first wafer onto a wafer carrier;  
moving said wafer carrier into an auxiliary chamber of a load lock;  
treating said first wafer in said auxiliary chamber of said load lock;  
removing said first wafer from said load lock to a process chamber; and  
placing a second wafer onto said wafer carrier.

24. The method of Claim 23, wherein said first wafer is an unprocessed wafer.

25. The method of Claim 24, wherein said second wafer is also an unprocessed wafer.

26. The method of Claim 25, wherein removing said first wafer from said load lock occurs before placing said second wafer onto said wafer carrier.

27. The method of Claim 24, wherein said second wafer is a processed wafer.

28. The method of Claim 27, wherein removing said first wafer from said load lock occurs after placing said second wafer onto said wafer carrier.

29. The method of Claim 27, further comprising:  
placing a third unprocessed wafer onto said wafer carrier,  
removing said second wafer from said load lock.

30. The method of Claim 29, wherein removing said second wafer from said load lock occurs after placing said third wafer onto said wafer carrier.

31. The method of Claim 23, wherein said first wafer is a processed wafer.

32. The method of Claim 31, wherein said second wafer is a processed wafer.

33. The method of Claim 32, wherein removing said first wafer from said load lock occurs before placing said second wafer onto said wafer carrier.

34. The method of Claim 31, wherein said second wafer is an unprocessed wafer.

35. The method of Claim 34, wherein removing said first wafer from said load lock occurs after placing said second wafer onto said wafer carrier.

36. The method of Claim 23, wherein said wafer carrier is in said first chamber when said first wafer is placed onto said wafer carrier and when said first wafer is removed from said load lock.

37. The method of Claim 36, wherein said first wafer is a processed wafer.

38. The method of Claim 36, wherein said first wafer is an unprocessed wafer.

39. The method of Claim 23, wherein said wafer carrier is in said first chamber when said first wafer is placed onto said wafer carrier and said wafer carrier is in said auxiliary chamber when said first wafer is removed from said load lock.

40. The method of Claim 39, wherein said first wafer is a processed wafer.

41. The method of Claim 39, wherein said first wafer is an unprocessed wafer.

42. The method of Claim 23, wherein said wafer carrier is in said auxiliary chamber when said first wafer is placed onto said wafer carrier and said wafer carrier is in said first chamber when said first wafer is removed from said load lock.

43. The method of Claim 42, wherein said first wafer is a processed wafer.

44. The method of Claim 42, wherein said first wafer is an unprocessed wafer.

45. The method of Claim 23, further including moving said wafer carrier from outside said load lock to inside said load lock through said first port.

46. The method of Claim 45, wherein said load lock further includes an elevator plate and moving said wafer carrier from outside said load lock further includes substantially closing said first port with an elevator plate.

47. The method of Claim 23, wherein treating said first wafer includes cleaning said first wafer.

48. The method of Claim 23, wherein treating said first wafer includes measuring said first wafer.

49. The method of Claim 23, wherein treating said first wafer includes oxidizing said first wafer.

50. The method of Claim 23, wherein treating said first wafer includes heating said first wafer.

51. The method of Claim 23, further including purging said load lock.

52. The method of Claim 23, further including processing a wafer in a processing chamber while said first wafer is being treated in said auxiliary chamber.

53. The method of Claim 23, further including allowing said second wafer to cool while said first wafer is being removed from said load lock.

54. The method of Claim 23, wherein said load lock further includes an elevator plate and moving said wafer carrier includes moving said elevator plate vertically.

55. The method of Claim 23, further including sealing said auxiliary chamber from said first chamber with said elevator plate.

56. The method of Claim 23, wherein moving said wafer carrier into said auxiliary chamber includes substantially sealing said wafer carrier in said auxiliary chamber.

57. A system for processing substrates, comprising  
a load lock chamber including a lower portion having a first inner width and an upper portion having a narrower second inner width, the chamber including a first port and a second port, each of the ports sized to pass substrates therethrough, the load lock chamber further comprising a moveable platform configured to support at least one substrate thereon and sized to have a width less than the first inner width and greater than the second inner width to enable selectively sealing the upper portion with the at least one substrate supported thereon;

a substrate handling chamber selectively communicating with the load lock chamber through the first port; and

at least one process chamber selectively communicating with the substrate handling chamber.

58. The system of Claim 57, wherein the load lock chamber selectively communicates with a clean room environment through the second port.

59. The system of Claim 58, wherein the first port is located in the lower portion.

60. The system of Claim 59, wherein the second port is located in the lower portion.

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61. The system of Claim 57, wherein the first port is located in the upper portion.

62. The system of Claim 57, wherein the upper portion includes treatment gas injectors.

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63. The system of Claim 62, wherein the treatment gas injectors communicate with a source of HF vapor.

64. The system of Claim 62, wherein the treatment gas injectors communicate with an oxidant source.

65. The system of Claim 57, wherein the moveable platform includes two shelves for supporting substrates.

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